CRUISE REPORT

Southeast Fishery-Independent Survey (SEFIS)

R/V *Savannah* Cruise SH-10-30
27 – 29 September 2010
Total Number of Sea Days - 3

U.S. Department of Commerce
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Southeast Fisheries Science Center
Beaufort Laboratory
101 Pivers Island Rd.
Beaufort, NC 28516

7 camera-trap deployments
1 CTD cast

INTRODUCTION

The R/V *Savannah* departed Savannah, GA, on 27 September 2010 at 1630 for a Southeast Fishery-Independent Survey (SEFIS) cruise in continental shelf and shelf-break waters off the southeastern US. SEFIS was created by the National Marine Fisheries Service in 2010 and is run out of the Beaufort Laboratory. This survey conducts applied fishery-independent sampling and related research focusing on the assessment of spatial variability in distribution and abundance of red snapper and other reef species within the snapper-grouper complex, via data collected from fish traps, video cameras, and acoustics. During this survey, chevron trap catches and associated underwater video recordings were collected from randomly selected stations on known hardbottom habitats between 30.55 and 30.58 °N. A total of 7 stations were sampled with camera-trap gear over 3 sea days between 43 and 67 meter depths before bad weather forced an early end to the cruise.

OBJECTIVES

1. Increase the spatial footprint and sample size of fishery-independent sampling in US southeast waters. Baited chevron traps, most of which had one or more mounted high-definition video cameras, were utilized for hardbottom reef fish community assessments and collection of reef fish for biological samples (i.e., otoliths and gonads).

2. Use video cameras on chevron traps to address trap selectivity issues, locate and describe hardbottom habitats, and provide an additional index of abundance for stock assessments.

3. Use a CTD instrument package to collect environmental data (temperature, salinity, dissolved oxygen, and turbidity) at camera-trap sampling locations.

METHODS

Camera-Trap Sampling

Camera-trap gear consisted of primarily of two high definition video cameras mounted to a chevron fish trap. Chevron traps were constructed out of plastic-coated wire mesh. Two different cameras were mounted on the traps (GoPro Hero HD; Canon Vixia HFS200; Figure 1). Traps were baited with Atlantic menhaden, *Brevoortia tyrannus*, and video cameras were set to record before deployment. Camera-traps were deployed at randomly selected stations at least 200 meters apart on suspected or known hardbottom habitats, and left to soak for approximately 90 minutes. Camera-traps were most often deployed in sets of six. A CTD cast (see environmental data collection) was conducted during the 90-minute soak time for each trap set. Fish catches were processed after trap retrieval. All fish were counted, weighed, and measured to the nearest millimeter. Individuals of select species (e.g., species in the snapper-grouper complex) were further processed for additional lengths and biological samples (otoliths, gonads, and DNA). Video files were downloaded and backed up on media storage devices. Biological samples and video files were brought to the Beaufort laboratory for further processing and analysis.

Environmental Data Collection
Environmental data were collected with a Seabird "Conductivity, Temperature and Depth" instrument package (CTD; model SBE 25) and Scientific Computer System software (SCS). CTD casts were conducted near the middle of each camera-trap soak period; instruments were lowered to within 2 meters of the bottom. Numerous water profile measurements were collected, including temperature (◦C), salinity (parts per thousand), dissolved oxygen (mg/L), and turbidity (% transmission). CTD data were archived for further processing at the Beaufort laboratory.
SCS software (version 4.2.3) was used to collect specific information for each fishing and CTD event, including soak time/cast duration as well as start and end latitude, longitude, and depth (m).

SURVEY RESULTS

Camera-Trap Sampling
7 stations were sampled with camera-trap gear (Table 1, Figure 2). From these traps, 4 taxa were collected and worked up for length frequency data. Bad weather forced us back to Savannah much earlier than expected.

Environmental Data Collection
1 CTD cast was conducted during the cruise (Table 1, Figure 2). CTD data were processed back at the lab using Seabird SBE Data Processing software (version 7.2) and archived in a database at the NMFS-Beaufort Laboratory for future analysis.

Table 1. Summary of station coordinates, depth, date and time for each fishing event (camera-trap, Gear=324) and CTD cast (Gear=298) conducted on the SH-10-30 survey. Times were recorded in Coordinated Universal Time (UTC).

Collection Number	Gear	Date	Time (UTC)	Latitude	Longitude	Depth (m)
100315	324	09/28/2010	12:42:00	30.56	-80.17	52
100316	324	09/28/2010	13:00:00	30.56	-80.17	43
100317	324	09/28/2010	13:12:00	30.56	-80.17	49
100318	324	09/28/2010	13:19:00	30.57	-80.16	55
100319	324	09/28/2010	13:27:00	30.57	-80.16	51
100320	324	09/28/2010	13:35:00	30.57	-80.16	49
100321	298	09/28/2010	13:51:00	30.58	-80.15	67
100322	324	09/28/2010	17:58:00	30.55	-80.26	44

Figure 1. Chevron trap with video cameras attached over the nose and mouth positions.

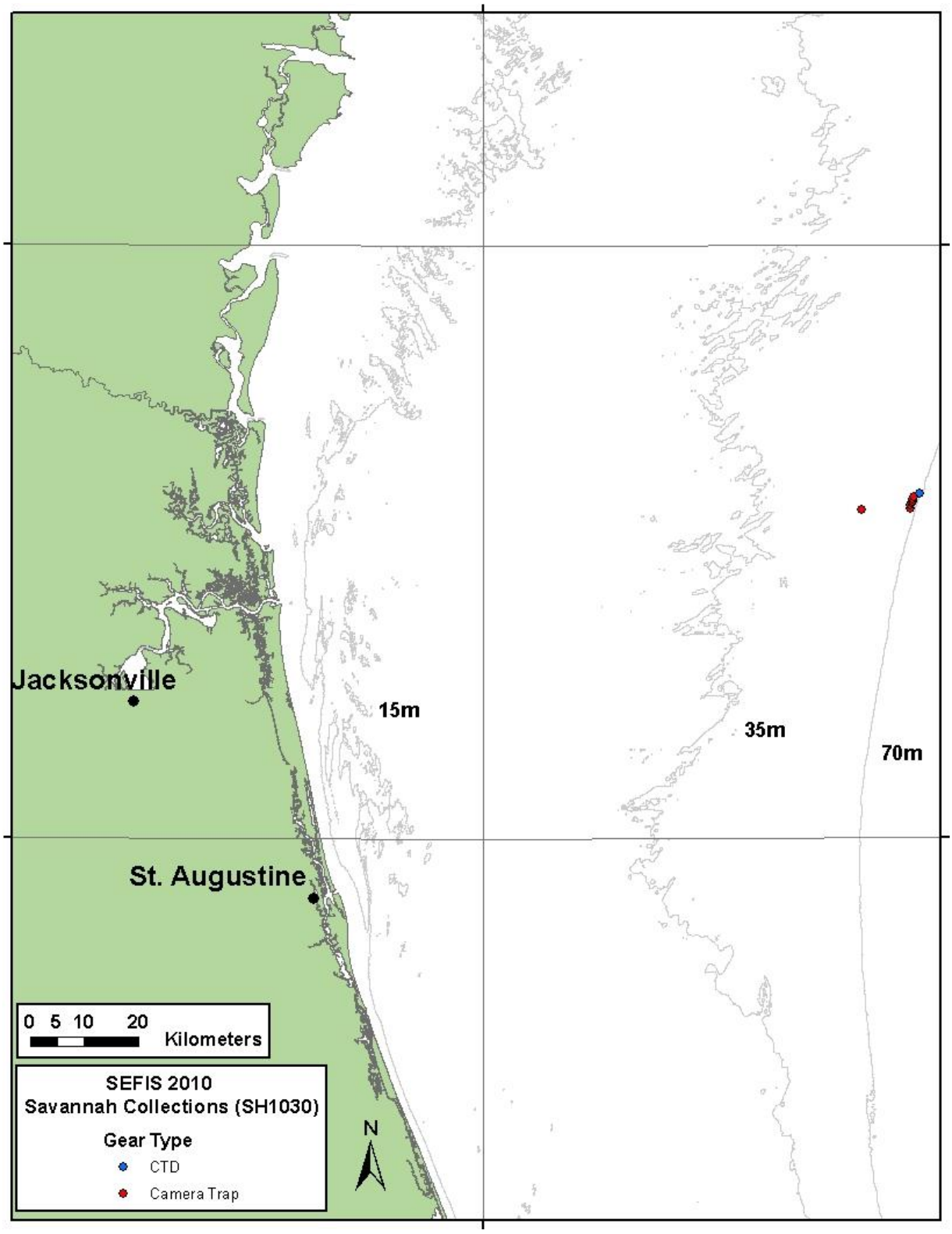

Figure 2. Locations of stations sampled with camera-trap and CTD gear on the SH-10-30 survey. Note that some symbols overlap.

Cruise Report Prepared by: Nate Bacheler and Christina Schobernd

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